United States
Environmental Protection
Agency

Office of Research and
Development
Washington DC 20460

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EPA

1998 SMALL GRANTS IN HEXAVALENT CHROMIUM RISK REDUCTION

Joint announcement of availability

Environmental Protection Agency

American Electroplaters and Surface Finishing Society

Opening Date: March 2, 1998

Closing Date: May 29, 1998

EPA/AESF PARTNERSHIP FOR ENVIRONMENTAL RESEARCH

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I. INTRODUCTION

The EPA Office of Research and Development (ORD), and the American Electroplaters and Surface Finishers Society (AESF), Research Board (RB), invite research and development (R&D) grant applications in the following area of special interest to their respective missions:

Common Sense Initiative
Metal Finishing Sector

Hexavalent Chromium Risk Reduction

This invitation provides relevant background information, summarizes EPA's and AESF's interest in the topic areas, and describes the application and review process.

II. Background for This Joint Solicitation

The U.S. Environmental Protection Agency (EPA)'s Common Sense Initiative (CSI) is a reinvention activity that focuses on developing and implementing new types of environmental management in six industrial sectors--auto manufacturing, iron and steel, electronics and computers, petroleum refining, printing, and metal finishing. EPA created a CSI Council under the Federal Advisory Committee Act with a subcommittee for each sector. The EPA Administrator appoints the members of the Council and the Subcommittees, each of which must have balanced membership from all relevant stakeholder groups--including industry and industry associations, national and local environmental groups, environmental justice and community health groups, labor, publicly-owned treatment works, and other Federal, State and local agencies. Each sectoral subcommittee reaches consensus on what environmental management problems in the sector should be addressed, how they should be addressed, the conduct of pilot and demonstration projects to test out new approaches, and what recommendations to propose that the CSI Council make to the EPA Administrator on changes in policies, programs, and procedures.

The CSI Metal Finishing Subcommittee created a number of work groups to carry out its work. These include: Regulatory and Reporting, Research and Technology, Risk Characterization, Promoting Improved Performance, Environmentally Responsible Transition, Compliance and Enforcement, Access to Capital, and Strategic Goals. The Subcommittee, with the support of the CSI Council, has developed and is beginning to implement a Strategic Goals Program. The goals involve commitments by the metal finishing industry to achieve levels of compliance and beyond compliance environmental performance, as well as economic, energy efficiency, and other benefits, by 2002. All of the stakeholders, including EPA, have committed to take specific types of actions that will help industry to meet these goals.

The Subcommittee's Research and Technology Work Group, which is co-chaired by ORD and AESF, developed a National Metal Finishing Environmental R&D Plan (Plan). The Subcommittee endorsed and the Council supports the Plan. The purpose of the Plan is to help provide timely and reliable information to industry and other stakeholders on technologies that will help to achieve the national goals. This Request for Applications (RFA) is being issued as an activity under a Memorandum of Understanding between EPA and AESF to implement the recommendations of the Plan.

A. EPA Mission and R&D Strategy

The mission of EPA is to protect both environmental quality and human health through effective regulations and other policy implementation. Achievement of this mission requires the application of sound science and technology to the assessment of environmental problems and to the evaluation of possible solutions. A significant challenge is to support both long-term R&D that anticipates future environmental problems and short-term R&D that fills gaps in knowledge relevant to current Agency goals. This RFA is an important step toward promoting a sound scientific and technical foundation for environmental protection.

EPA's R&D programs focus on the reduction of uncertainty associated with risk assessment and reduction of risks to human health and ecosystems. Through its laboratories and through grants to academic and other not-for-profit and profit-making institutions, EPA promotes R&D in both domains.

In the area of risk characterization EPA is increasingly interested in being able to determine the risks posed by particular industrial operations. Highest priority is

accorded to the development and proving out of new methods and models for determining the risks from these operations and facilities to workers, the surrounding communities, and the environment. The development of simpler-to-use, more easily understandable, and cheaper methods is stressed.

EPA also fosters the development and evaluation of new risk reduction technologies across a spectrum--according highest priority to pollution prevention technologies but still supporting recycling, treatment, responsible disposal, and remediation, in that order, as warranted. Both for characterizing emissions and risk and for determining reduction of emissions and risk from the utilization of specific reduction technologies, EPA is very interested in the development and demonstration of effective, easy-to-use, and inexpensive monitoring and analytical technologies. In all areas, EPA is interested in R&D that recognizes issues relating to environmental justice, the concept of achieving equal protection from environmental and health hazards for all people without regard to race, economic status, or culture.

EPA's extramural R&D grants programs are administered by ORD's National Center for Environmental Research and Quality Assurance (NCERQA).

B. AESF Mission and R&D Strategy

The mission of the AESF is:

> *"to advance the science and technology of surface finishing and to disseminate knowledge thereof, and to develop a cooperative spirit of friendship and mutual assistance among its members. In furtherance of its objectives, the Society shall conduct all such activities and do all such acts as may be reasonably related to its objectives."*

The AESF has an extensive program of short courses, conferences, work shops, exhibitions, publications, as well as an accreditation program to meet its objectives at the local, regional, and national levels. Committees, Sections, and Boards are responsible for providing the content and scope of these activities and providing recommendations for implementation to the Board of Directors.

As part of the operations of the AESF, there is a formal Research Program managed by the Research Board. The mission of this Research Program, which has been active for 70 years, is "to arrange for, and encourage, the development of information in harmony with the objectives of the Society, and to disseminate this knowledge." Because of the importance of the Common Sense Initiative, and the topics being addressed under the Metal Finishing Sector Subcommittee, the Chairman of the Research Board has been participating in the Research and Technology Work Group of this Subcommittee and has helped to draft the National Metal Finishing Environmental R&D Plan.

III. R&D Topics Addressed in This RFA

EPA and AESF are seeking grant applications to conduct environmental R&D based on the following National Metal Finishing Environmental R&D Plan recommendation:

> ***In terms of R&D on particular materials of concern, highest priority should be given to continuing and expanding R&D on various aspects of reducing and eliminating multimedia emissions from hard chrome plating operations.***

The objective of this research is to help bring multimedia emissions from hard chrome plating (not decorative chrome plating or anodizing) operations as close to zero as possible- without transfer of the emissions from one medium to another.

To implement this research objective the Plan recommended that R&D projects should focus on one of the following risk reduction topic areas:

1. **How do the best existing closed-loop and no- or low-emissions hard chrome plating processes achieve their emission reductions compared to the same or similar systems without the closed-loop and other pollution prevention technologies, and what are the reductions in risks to workers and nearby residents?**

2. **Develop and demonstrate innovative, preferably simple and low-cost, approaches to achieving emissions reductions and risk reduction.**

The target plating operations are those in typical job shops, so that the results will be as widely applicable to the industry as possible. A high priority is the testing of innovative low-cost, simple-to-use, reliable technologies, which is what job shops need. Pollution prevention technologies should be used to achieve this objective. Pollution prevention ("source reduction") is defined as the design of a manufacturing process, use of inputs (including energy), and methods of operation and maintenance of that process that reduce the quantity and/or toxicity of the materials of production and of the operation's emissions and wastes in one or more media. Pollution prevention also includes the **in process** recycling of materials--i.e., recycling into the same specific operation, **not** recycling into other operations in the same facility or into operations in off-site facilities.

It appears that there is no single technology that can achieve this multi-media emissions reduction. Usually, in the past, single technologies have been tried that may achieve part of the result in one medium. Rarely have multiple technologies been tested together to achieve multi media pollution prevention. Documenting or demonstrating such multi-technology usage, however, is what is desired here.

Through this research, it is hoped that a better understanding will be obtained of the overall state-of-the-art of multi-media pollution prevention in hard chrome plating and that individual--or, preferably, groups of--innovative technologies will be tested and evaluated to help achieve no-or low-(multimedia) emissions from those operations. These new technologies need not be commercially available at the time of testing. They should already have been proven at the pilot or bench scale, however, so that this research can be conducted in operating hard chrome plating job shops.

A critical literature review of the current state-of-the-art related to the type of risk reduction technologies that a researcher proposes to study must be carried out. The researcher must then explain how the proposed research project will advance the state-of-the-art in that area. AESF and EPA will fund the group of highly qualified projects that will, taken together, best advance the overall state-of-the-art of multimedia risk reduction from hard chrome plating job shops.

More specifically, perhaps for the first time, researchers will be required in all projects funded under this solicitation to determine not just emissions reductions but reductions in risks to workers and nearby residents to demonstrate the efficacy of the tested technologies. Teaming or sub-contracting between, for example, metal finishing firms and qualified consulting firms and analytical laboratories may be necessary to determine the emissions and actual or modeled exposures that are necessary to determine risk reductions. The most appropriate and cost-effective OSHA- and EPA-approved and/or modified methods must be used in the sample-taking and analyses that are performed. At a minimum air sampling methods for determining worker exposure to hexavalent chromium must have a detection limit of 0.001 micrograms per cubic meter for qualitative analysis and a quantitative detection limit of 0.003 micrograms per cubic meter based on a 960 liter air sample.

Two types of proposals will be entertained. One type would study one technology, several single technologies, or--most preferred--sets of technologies that are already installed in operating hard chrome plating job shops and are purported to achieve no- or low-emissions through closed loop operations in at least one medium. The challenge will be to develop a meaningful test plan, which could include studying the performance of the same or similar technologies installed in more than one plant or studying different technologies that seem to achieve the same or similar results in the same or different plants. The objective will be to evaluate and characterize the performance of the system(s) as fully as possible, including identifying the parameters and work practices that would be important for other platers to understand if they wanted to install such a system or systems in their own plants.

The second type of proposal would be to finish the development of a technology or set of technologies--preferably by merely optimizing it *in situ* in one or more hard chrome plating job shops--and evaluating and characterizing its performance, as described above. These technologies need not be commercially available, but the closer they are to final proof-of-performance testing, the more likely it will be that useful results will be available within the resource and time limitations of these grants. These projects are likely to provide a clearer basis for before and after installation measurements of performance than are those in the first type of study proposal. These proposals must include an analysis of the needs and plans for commercialization of the technology(ies) if they prove out.

In summary, to achieve the purposes of this small grants R&D program, proposers are strongly encouraged to address the following topics and issues when preparing their proposals:

* including in the proposal an initial critical literature review and an explanation of how the proposed research will advance the state-of-the-art;
* committing in the proposal to conduct a thorough critical literature review, before performing the proposed field research, that will enable the proposer to write up after the R&D is performed what the contribution of the research has been to advancing the state-of the-art of multi-media risk reduction from hard chrome plating;
* the objective of the proposed research and the hypotheses that will be tested in the research are clearly laid out and explained in the proposal;
* the extent to which multi-media, rather than single medium, risk reduction will be achieved;
* the extent to which effective combinations of simple, low-cost, easy to install, and easy to operate and maintain pollution prevention technologies (rather than single technologies) will be studied or tested and evaluated;

* the extent to which the most appropriate and cost-effective OSHA-approved and/or modified methods will be used to measure worker exposure and calculate reduction in risks to workers and EPA-approved and/or modified methods will be used to determine community exposure and calculate reduction in risks to neighbors of the chrome plating facility as a result of using the tested technologies;
* the extent to which the parameters and work practices that are important for platers to understand in utilizing the researched technologies will be characterized in the report on the research results;
* including in the proposals that involve field testing of technologies a convincing commercialization plan; and
* the extent to which the project has cost-sharing (direct funding and/or in-kind services).

IV. Criteria for Evaluating Proposals

An R&D project proposed in response to this RFA must be a discrete, independent activity that can be accomplished within the time and funding constraints described in this RFA. The proposed R&D project must fall within the guidelines of the topic for this RFA--i.e., reducing the multi-media risks to workers and neighbors from hard chrome plating job shop operations--and meet the mission of EPA and/or of AESF. The benefits of carrying out the proposed R&D must be clearly delineated.

The technical peer review of proposals is designed to evaluate each proposal according to its scientific merit. The reviewers use the following criteria to help them in their reviews:

1. The originality and creativity of the proposed research, the appropriateness and adequacy of the research methods proposed, and the appropriateness and adequacy of the Quality Assurance Narrative Statement. Is the research approach practical and technically defensible, and can the project be performed within the proposed time period? Will the research contribute to scientific knowledge in the topic area of the solicitation? Is the proposal well-prepared with supportive information that is self-explanatory and understandable?
2. The qualifications of the principal investigator(s) and other key personnel, including research training, demonstrated knowledge of pertinent literature, experience, and publication records. Will all key personnel contribute a significant time commitment to the project?
3. The availability and/or adequacy of the facilities and equipment proposed for the project. Are there any deficiencies that may interfere with the successful completion of the research?
4. The responsiveness of the proposal to the research needs identified for the topic area. Does the proposal adequately address all of the objectives specified for this topic area?
5. Although budget information is not used by the reviewers as the basis for their evaluation of scientific merit, the reviewers are asked to provide their view on the appropriateness and/or adequacy of the proposed budget and its implications for the potential success of the proposed research. Input on requested equipment is of particular interest.

V. Funding and Awards

About $600,000 is expected to be available in FY98 for awards in this program--$500,000 from EPA and $100,000 from AESF. Only proposals for **Small Grants** of $50,000 or less will be accepted. Only proposals of $25,000 or less will be considered for AESF funding. **Co-funding from other sources is strongly encouraged.** All funded projects must be completed within eighteen (18) months of award. Awards are subject to the availability of funds.

Although each award will be made to one entity, EPA (and AESF) encourage teaming where the awardee creates separate arrangements with other parties. For instance, a job shop and an engineering consulting firm may determine that by working together they will obtain the most successful results for the proposed research, and one of these submits a proposal anticipating placing a subcontract with its partner. Applicants are also encouraged to have adequate expertise within their organization or team/subcontractors to carry out all aspects of their research.

In general, awards will be made as grants. However, EPA may chose to make certain awards in the form of cooperative agreements, which implies a significant amount of interaction between EPA and the assistance recipient. EPA may award cooperative agreements (in lieu of grants) if EPA determines that the proposal would benefit from participation by EPA. EPA will make this decision at the time of award. AESF is normally involved at various levels on a case-by case basis in the projects they fund via grants. The type of instrument used for award will not influence either the proposal evaluation or the amount of funding available. An award will be totally funded by one of the funding entities at the discretion of EPA and AESF.

VI. Eligibility

Academic, not-for-profit, and profit-making institutions and organizations located in the U.S., as well as State and local governments, are eligible to submit proposals under this RFA. Federal agencies are not eligible to receive assistance from EPA under this program.

Federal employees may cooperate or collaborate with eligible applicants within the limits imposed by applicable legislation and regulations. However, Federal agencies and Federal employees are not eligible to receive funding through this program and may not serve in a principal leadership role. An exception may occur when the principal investigator's institution subcontracts to a Federal agency to purchase unique supplies or services unavailable in the private sector. Examples are purchase of satellite data, census data tapes, chemical reference standards, unique analyses not available elsewhere, etc. A written justification for such Federal involvement must be included in the application, along with an assurance from the Federal agency which commits it to supply the specified service.

VII. How to Submit an Application

This section contains a set of instructions related to how applicants should apply under this solicitation.

A. Sorting Code

In order to facilitate proper assignment and review of applications, each applicant is asked to identify the topic area in which their application is to be considered. **It is the responsibility of the applicant to correctly identify the proper sorting code.** Failure to do so will result in an improper review assignment. At various places within the application, applicants will be asked to identify the topic area by using the appropriate Sorting Code. The Sorting Code for this solicitation is shown below:

98-NCERQA-Q1 = Studies of Existing Systems

98-NCERQA-Q2 = Evaluations of New Technologies

The Sorting Code must be placed at the top of the abstract (as shown in the abstract format), in Box 10 of Standard Form 424 (as described in the section on SF424), and should also be included in the address on the package that is sent to EPA (see Section C. How and When to Apply).

B. What You Need to Submit

The initial application is made through the submission of the materials described below. **It is essential that the application contain all the information requested and be submitted in the formats described.** If it is not, the application may be rejected on administrative grounds. If an application is considered for award, (i.e., after peer and programmatic review) additional forms and other information will be requested by the Project Officer. **The application should not be bound or stapled in any way.** The Application should contain the following:

1. **Standard Form 424:** The applicant must complete Standard Form 424 (see attached form and instructions). *This form will act as a cover sheet for the application and **should be its first page.*** Instructions for completion of the SF424 are included with the form. The form must contain the original signature of an authorized representative of the applying institution. Please note that both the Principal Investigator and an administrative contact should be identified in Section 5 of the SF424.

2. **Key Contacts:** The applicant must complete the Key Contacts Form (attached) as the **second page** of the submitted application.

3. **Abstract: The abstract is a very important document.** It should not exceed one (1) 8.5x11-inch page of single-spaced standard 12 point type with 1 inch margins. Prior to attending the peer review panel meetings, some of the panelists may read only the abstract. Therefore it is critical that the abstract accurately describe the R&D being proposed and convey all the essential elements of the R&D. Also, in the event of an award, the abstracts will form the basis for an Annual Report of awards made under this program. Therefore, it is worth spending the time required to make sure that the abstract accurately describes the R&D being proposed. The abstract should include the following information (see sample attachment):

   a. EPA Sorting Code: Use the correct code that corresponds to the appropriate RFA topic.

   b. Title: Use the exact title as it appears in the rest of the application.

   c. Investigators: List the names and affiliations of each investigator who will significantly contribute to the project. Start with the Principal Investigator.

   d. Project Summary: This should summarize: (a) the **objectives** of the study (including any hypotheses

that will be tested), (b) the **approach** to be used (which should give an accurate description of the project as described in the proposal), (c) the **expected results** of the project and how they address the research needs identified in the solicitation and the **estimated improvement in risk assessment or risk management** that will be realized from successful completion of the work proposed.

4. **Project Description:** This description must not exceed fifteen (15) consecutively numbered (center bottom), 8.5x11-inch pages of single-spaced standard 12 point type with 1 inch margins. The description must provide the following information:

   a. Objectives: List the objective of the proposed R&D and the hypotheses being tested during the project and briefly state why the intended R&D is important. This section can also include any background or introductory information that would help explain the objectives of the study (one to two pages recommended).

   b. Approach: Within the context of a critical literature review, outline the methods, approaches, and techniques that you intend to employ in meeting the objective stated above (five to 10 pages recommended).

   c. Expected Results or Benefits: Describe the results you expect to achieve during the project and the benefits of success as they relate to the topic under which the proposal was submitted. This section should also discuss the utility of the R&D project proposed for addressing the environmental problems described in the solicitation (one to two pages recommended).

   d. General Project Information: Discuss other information relevant to the potential success of the project. This should include facilities, personnel, project schedules, proposed management, interactions with other institutions, etc. (one to two pages recommended).

   e. Important Attachments: Appendices and/or other information may be included, but must remain within the 15-page limit. References Citres are in addition to the 15 pages.

5. **Resumes:** The resumes of all principal investigators and important co workers should be presented. Resumes must not exceed two consecutively numbered (bottom center), 8.5 x 11-inch pages of single-spaced standard 12 point type with 1-inch margins for each individual.

6. **Current and Pending Support:** The applicant must identify any current and pending financial resources that are intended to support R&D related to that included in the proposal. This should be done by completing the appropriate form (see attachment) for each investigator and other senior personnel involved in the proposal. Failure to provide this information may delay consideration of your proposal.

7. **Budget:** The applicant must present a detailed, itemized budget for the entire project. This budget must be in the format provided (see sample attachment) and not exceed two consecutively-numbered (bottom center), 8.5 x 11-inch pages with 1 inch margins. Please note that, while cost-sharing is not required, it is strongly encouraged. While it, therefore, will not be included in the budget table if there is no cost-sharing, it does have to be included in the budget table if there is cost sharing. If desired, a statement concerning cost-sharing can be added to the budget justification.

8. **Budget Justification:** This section should describe the basis for calculating the *personnel, fringe benefits, travel, equipment, supplies, contractual support,* and *other* costs identified in the itemized budget and explain the basis for their calculation (special attention should be given to explaining the *travel, equipment, and other* categories). This should also include an explanation of how the indirect costs were calculated. If your proposed indirect cost rates have not recently been accepted by a contracting agency of the government, you should provide detailed supporting computations in your justification. EPA does not permit profit on grants and cooperative agreements. This justification should not exceed two consecutively- numbered (bottom center), 8.5 x 11-inch pages of single-spaced standard 12 point type with 1-inch margins. (**Note**: Grants that are funded with AESF funds have limitations on certain overhead costs; these will require negotiation with AESF.)

9. **Quality Assurance Narrative Statement:** For awards that involve environmentally-related measurements or data generation, a quality system that complies with the requirements of ANSI/ASQC E4, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," must be in place. This statement should not exceed two consecutively-numbered (bottom center), 8.5 x 11-inch pages of single-spaced standard 12 point type with 1-inch margins. This is in addition to the 15 pages permitted for the Project Description. The Quality Assurance Narrative Statement should, for each item listed

below, either present the required information or provide a justification as to why the item does not apply to the proposed research.

a. The data collection activities to be performed or hypotheses to be tested (reference may be made to the specific page and paragraph number in the application where this information may be found) and the acceptance criteria for data quality (precision, accuracy, representativeness, completeness, and comparability).

b. The survey design, including sample type and location requirements, and any statistical analyses that were used to estimate the types and numbers of samples required.

c. The procedures for the handling and custody of samples, including sample identification, preservation, transportation, and storage.

d. The methods that will be used to analyze samples collected, including a description of the sampling and/or analytical instruments required.

e. The procedures that will be used in the calibration and performance evaluation of the sampling and analytical methods used during the project.

f. The procedures for data reduction and reporting, including description of statistical analyses to be used.

g. The intended use of the data as they relate to the study objectives or hypotheses.

h. The quantitative and or qualitative procedures that will be used to evaluate the success of the project.

i. Any plans for peer or other reviews of the survey design or analytical methods prior to data collection.

ANSI/ASQC E4, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" is available for purchase from the American Society for Quality Control, phone 1-800-248-1946, item T55. Only in exceptional circumstances should it be necessary to consult this document.

J. Postcard: The Applicant must include with the application a self-addressed, stamped 3 x 5-inch post card. This will be used to acknowledge receipt of the application and to transmit other important information to the Applicant.

C. How and When to Apply

The original and ten (10) copies of the fully developed application and five (5) additional copies of the abstract (15 in all), must be received by NCERQA no later than 4:00 P.M. EST on May 29, 1998. Applications received after this date and time will not be considered for funding.

The application and abstract must be prepared in accordance with these instructions. Informal, incomplete, or unsigned proposals will not be considered. The application should not be bound or stapled in any way. The original and copies of the application should be secured with paper or binder clips. Completed applications should be sent via regular mail to:

U.S. Environmental Protection Agency
Peer Review Division (8703R)
Sorting Code: 98-NCERQA-Q{1 or 2}
401 M Street, SW
Washington DC 20460

For express mail or courier applications, the following address must be used:

U. S. Environmental Protection Agency
Peer Review Division (8703R)
Sorting Code: 98-NCERQA-Q{1 or 2}
1300 Pennsylvania Avenue, NW
Room B-10105
Washington, DC 20004

Phone: (202) 564-6939 (for express mail applications)

The sorting code must be identified in the address (as shown above).

D. Guidelines, Limitations, and Additional Requirements

Proposals must be submitted to only one topic area, using a single sorting code. Proposals submitted to more than one RFA topic will be assigned to the topic designated on the first version received or to the first sorting code designated on the application. If you wish to submit more than one application, you must ensure that the R&D proposed is significantly different from that in any other that has been submitted to this solicitation or from any other assistance you are currently receiving from EPA or any other Federal government agency or from AESF.

Projects which contain subcontracts constituting more than 40% of the total direct cost of the award for each year in which the subcontract is awarded will be subject to special review and may require additional justification.

Principal Investigators will be expected to budget for and participate in an annual All Investigators Meeting with EPA scientists and engineers, AESF members, and other grantees to report on their R&D results and to discuss issues of mutual interest. If it is possible, this meeting will be held in conjunction with an AESF annual meeting.

Applications selected for funding will require additional certifications, possibly a revised budget, and responses to any comments or suggestions offered by the peer reviewers. Project officers will contact principal investigators to obtain these materials.

VIII. Review and Selection

All grant applications will initially be reviewed by EPA to determine their legal and administrative acceptability. Acceptable applications will then be reviewed by a technical peer review group jointly set up by EPA and AESF. This review is designed to evaluate each proposal according to its technical and scientific merit. The technical peer review group will be composed of engineers and scientists from industry, academia, and other Federal agencies who are experts in their respective disciplines. These reviewers will be expert in areas appropriate to review the specific proposals being evaluated.

Applications that receive scores of excellent and very good by the peer reviewers will be subjected to a joint programmatic review by representatives from EPA and AESF, the object being to assure a balanced portfolio to support the CSI metal finishing sector R&D needs. Funding decisions are the responsibility of EPA and AESF, which shall coordinate the awards to maximize the benefits from available R&D funds to the metal finishing sector.

A summary statement of the technical panel peer review will be provided to each applicant. Funding decisions are the sole responsibility of EPA and AESF for the projects funded by their respective organizations. Awards will be made on the basis of technical merit, relevancy to the R&D priorities outlined, program balance, cost, and budget availability.

IX. Proprietary Information

By submitting an application in response to this solicitation, the applicant grants EPA and AESF permission to share the application with technical reviewers both within and outside of the respective organizations. Applications containing proprietary or other types of confidential information will be returned to the applicant without review.

X. Funding Mechanism

The funding mechanism for all awards issued under this solicitation will consist of grants or cooperative agreements from EPA and grants from AESF. In accordance with Public Law 95-224, assistance agreements (grants and cooperative agreements) are used to accomplish a public purpose of support or stimulation authorized by Federal statute rather than to acquire goods or services for the direct benefit of the Agency.

XI. Contacts

Copies of this RFA may be viewed and obtained from the following Web sites: <http://www.epa.gov/ncerqa> and <http://www.nmfrc.org>

A contact person has been identified within EPA and AESF for this joint RFA. They will respond to inquiries regarding this solicitation and can respond to any technical questions related to your application.

Paul Shapiro
CSI Coordinator
EPA/ORD
202-564-6833
shapiro.paul@epamail.epa.gov

Gary Loar
Chairman
AESF/RB
216-441-4900, x5552
garyloar@ix.netcom.com

OMB Approval No. 0348-0043

APPLICATION FOR FEDERAL ASSISTANCE

2. DATE SUBMITTED	Applicant Identifier
3. DATE RECEIVED BY STATE	State Applicant Identifier
4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier

1. TYPE OF SUBMISSION

Application	*Preapplication*
☐ Construction	☐ Construction
☐ Non-Construction	☐ Non-Construction

5. APPLICANT INFORMATION — IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? ☐ YES ☐ NO IF YES, LIST ACRONYM(S)

Legal Name:

Organizational Unit:

Address ***(give city, county, state, and zip code)***:

Name and telephone and E-mail number of the person to be contacted on matters involving this application ***(give area code)***

PI:

ADMIN. CONTACT:

6. EMPLOYER IDENTIFICATION NUMBER (EIN):

☐☐ – ☐☐☐☐☐☐☐

7. TYPE OF APPLICANT: ***(enter appropriate letter in box)*** ☐

A. State
B. County
C. Municipal
D. Township
E. Interstate
F. Intermunicipal
G. Special District
H. Independent School Dist.
I. State Controlled Institution of Higher Learning
J. Private University
K. Indian Tribe
L. Individual
M. Profit Organization
N. Other (Specify) _____

8. TYPE OF APPLICATION:

☐ New ☐ Continuation ☐ Revision

If Revision, enter appropriate letter(s) in box(es): ☐ ☐

A. Increase Award B. Decrease Award C. Increase Duration
D. Decrease Duration Other ***(specify):***

_____

9. NAME OF FEDERAL AGENCY:

U.S. Environmental Protection Agency - ORD - NCERQA

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: 6 6 • 5 0 0

TITLE: **98-NCERQA -** _ _ _

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:

12. AREAS AFFECTED BY PROJECT ***(cities, counties, states, etc.):***

13. PROPOSED PROJECT:		14. CONGRESSIONAL DISTRICTS OF:	
Start Date	Ending Date	a. Applicant	b. Project

15. ESTIMATED TOTAL PROJECT FUNDING:		
a. Federal	$	.00
b. Applicant	$	.00
c. State	$	.00
d. Local	$	.00
e. Other	$	.00
f. Program Income	$	.00
g. TOTAL	$	.00

16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?

a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON:

DATE _____

b. NO. ☐ PROGRAM IS NOT COVERED BY E.O. 12372

☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW

17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?

☐ Yes If "Yes," attach an explanation. ☐ No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Typed Name of Authorized Representative	b. Title	c. Telephone number
d. Signature of Authorized Representative		e. Date Signed

Previous Editions Not Usable
Prescribed by OMB Circular A-102

Standard For 424 (REV 4-88)

Authorized for Local Reproduction

INSTRUCTIONS FOR THE SF 424

This is a standard form used by applicants as a required facesheet for preapplications and applications submitted for Federal Assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

Item: Entry:

1. Self-explanatory.

2. Date application submitted to Federal agency (or State, if applicable) & applicant's control number (if applicable).

3. State use only (if applicable).

4. If this application is to continue or revise an existing award, enter present Federal identifier number. If for a new project, leave blank.

5. Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application.

6. Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service.

7. Enter the appropriate letter in the space provided.

8. Check appropriate box and enter appropriate letter(s) in the space(s) provided:

   — "New" means a new assistance award.

   — "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date.

   — "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation.

9. Name of Federal agency from which assistance is being requested with this application.

10. Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is required.

11. Enter a brief descriptive title of the project. If me than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project.

Item: Entry:

12. List only the largest political entities affected (e.g., State, counties, cities.)

13. Self-explanatory.

14. List the applicant's Congressional Districts and any District(s) affected by the program or project.

15. Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, include *only* the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15.

16. Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process.

17. This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit allowances, loans and taxes.

18. To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.

KEY CONTACTS FORM

■ **Authorized Representative:** *Original awards and amendments will be sent to this individual for review and acceptance, unless otherwise indicated.*

Name: _____
Title: _____
Complete Address: _____

_____
Phone Number: _____

■ **Payee:** *Individual authorized to accept payments.*

Name: _____
Title: _____
Complete Address: _____

_____
Phone Number: _____

■ **Administrative Contact:** *Individual from Sponsored Programs Office to contact concerning administrative matters (i.e., indirect cost rate computation, rebudgeting requests etc.)*

Name: _____
Title: _____
Complete Address: _____

_____
Phone Number: _____
FAX Number: _____
E-Mail Number: _____

■ **Principal Investigator:** *Individual responsible for the technical completion of the proposed work.*

Name: _____
Title: _____
Complete Address: _____

_____
Phone Number: _____
FAX Number: _____
E-Mail Number: _____

EPA Grant Abstract *(Example Format)*

Sorting Code: *98-NCERQA-XX (use the correct code that corresponds to the appropriate RFA topic)*
Title: *Use the exact title as it appears in the rest of the application.*
Investigators: *List the names and affiliations of each investigator who will significantly contribute to the project. Start with the Principal Investigator.*
Institution: *Name of university or other applicant.*
Project Period: *October 1, 1998--September 30, 2000, for example.*
Research Category: *Enter your research topic name.*

Description:

Objectives/Hypothesis: *include a short statement on the context of the proposed research in relation to other environmental research in the particular area of work*

Approach: *outline the methods, approaches, and techniques you intend to employ in meeting the objectives*

Expected Results:

including a brief description of the
Improvements in Risk Assessment or Risk Management:
that will be realized if the expected results are achieved

Supplemental Keywords: *see attached suggestions. Do not duplicate terms used in the text of the abstract.*

SUGGESTED KEYWORDS

Media: (media, air, ambient air, atmosphere, ozone, water, drinking water, watersheds, groundwater, land, soil, sediments, acid deposition, global climate, indoor air, mobile sources, CASTNET, stratospheric ozone, tropospheric, marine, estuary, precipitation, leachate, adsorption, absorption, chemical transport)

Risk Assessment: (exposure, risk, risk assessment, effects, health effects, ecological effects, human health, bioavailability, metabolism, vulnerability, sensitive populations, dose-response, carcinogen, teratogen, mutagen, animal, mammalian, organism, cellular, population, enzymes, infants, children, elderly, stressor, age, race, diet, metabolism, genetic pre-disposition, genetic polymorphisms, sex, ethnic groups, susceptibility, cumulative effects)

Chemicals, toxics, toxic substances: (chemicals, toxics, particulates, ODS, VOC, CFC, PAH, PNA, PCB, dioxin, metals, heavy metals, solvents, oxidants, nitrogen oxides, sulfates, organics, DNAPL, NAPL, pathogens, viruses, bacteria, acid rain, effluent, discharge, dissolved solids, intermediates)

Ecosystem Protection: (ecosystem, indicators, restoration, regionalization, scaling, terrestrial, aquatic, habitat, integrated assessment)

Risk Management: pollution prevention (green chemistry, life-cycle analysis, alternatives, sustainable development, clean technologies, innovative technology, renewable, waste reduction, waste minimization, environmentally conscious manufacturing); treatment (remediation, bioremediation, cleanup, incineration, disinfection, oxidation, restoration)

Public Policy: (public policy, decision making, community-based, cost-benefit, conjoint analysis, observation, non-market valuation, contingent valuation, survey, psychological, preferences, public good, Bayesian, socio-economic, willingness-to-pay, compensation, conservation, environmental assets, sociological)

Scientific Disciplines: (environmental chemistry, marine science, biology, physics, engineering, social science, ecology, hydrology, geology, histology, epidemiology, genetics, pathology, mathematics, limnology, entomology, zoology)

Methods/Techniques: (EMAP, modeling, monitoring, analytical, surveys, measurement methods, general circulation models, climate models, satellite, landsat, remote sensing)

Geographic Areas: (Northeast, central, Northwest, Chesapeake Bay, Great Lakes, Midwest, Mid-Atlantic, states: {use both full name and two letter abbreviation}, EPA Regions 1 through 10)

Sectors: (agriculture, business, transportation, industry {petroleum, electronics, printing, etc}:{identify 4 digit SIC codes}, service industry, food processing, etc)

Current and Pending Support

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator:	Other agencies (including NSF) to which this proposal has been/will be submitted.

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ Transfer of Support
Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ Transfer of Support
Project/Proposal Title:

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Total Award Amount: $ Total Award Period Covered:
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Project/Proposal Title:

Source of Support:
Total Award Amount: $ Total Award Period Covered:
Location of Project:
Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

Itemized Budget for EPA Grant Applications *(Example Format)*

CATEGORIES	YEAR ONE	YEAR TWO	YEAR THREE	TOTAL PROJECT
a. Personnel Principal Investigator Co-PI Research Scientists Postdoctoral Scientists Other Personnel				
TOTAL PERSONNEL COSTS				
b. Fringe Benefits _____% of _____				
c. Travel Trip 1 Trip 1 Trip 1 ...etc.				
TOTAL TRAVEL COSTS				
d. Equipment Item 1 Item 2 Item 3 ...etc.				
TOTAL EQUIPMENT COSTS				
e. Supplies Item 1 Item 2 Item 3 ...etc.				
TOTAL SUPPLY COSTS				
f. Contracts 1 2 3 ...etc.				
TOTAL CONTRACTUAL COSTS				
g. Other Item 1 Item 2 Item 3 ...etc.				
TOTAL OTHER COSTS				
h. TOTAL DIRECT COSTS (sum of a-g)				
i. Indirect Costs/Charges _____% of _____ (base)				
j. TOTAL PROJECT COSTS (sum of h & i)				
k. TOTAL REQUESTED FROM EPA				

DO NOT USE THIS FORM -- Example 0nly --